

Comments on Range and Stopping Power Module, 05/07/2007

- 1) When you change the data in any combo box or click on any button and even when you change radio button, whole page is reloaded. This makes module slow. This has to be AJAX control.
- 2) There is too much space on the right side of page. Instead of this we should show some information about range and stopping power calculation in that space; for instance when positrons are selected there is the “empty space” on the right, then should be dynamic link to the positrons section of the wiki.
- 3) Instead of "atom" logo which is on the top of the page, it should be animated gif (provided).
- 4) Warning message must appear for all projectiles when energy of the projectile exceeds the limits. Presently, It works only for electrons and muons. It should be extended to every projectile. The warning message should not be at the top. It should be at the right of the Input section.

Electrons	10 keV-1GeV
Positrons	10 keV- 1 GeV
Muons	1 MeV – 1 GeV
Protons	1 keV – 2 GeV
Alphas	1 keV – 2 GeV
Other Ions	1 keV – 2 GeV

- 5) Triton and Deuteron should be removed from the projectile list.
- 6) Table headers should be left aligned (as is the data)
- 7) In the graph, the range of x axis should be between the minimum energy and maximum energy which R&SP module calculates.
- 8) In the graphs by default:
ticks in the inside; graph with border, x-axis start at 1 keV (stopping power)
- on the y-axis: Stopping Power keV/(ug/cm²) – is it possible to use a superscript i.e. keV/(μg/cm²)
- 9) Instead of using 1E+002, it should be used 1E+2 or 1E+02 in the graphs.
- 10) Stopping power unit is missing in the graph. It should be MeV/(g/cm²)
- 11) Superscripts should be used where possible e.g. like cm² instead of cm2.

12) There is a problem with wiki. Although we could not find any mistake in the mathematical formulas, it gives a lot of errors. Can you please look into this? We think there might be something wrong with the maths package.

13) Lastly, Dialogika has not changed the energy units part of module, which is wrong at the moment and we have already sent the correct code to them.

In the main, the following piece of code shall be implemented in the energy conversion section:

```
Select Case index_e
Case 0 'MeV
    Etemp = Val(Energy_textbox.Text) * 1000
Case 1 'MeV/amu
    If pred_proj.Text = "electron" Then
        Etemp = Val(Energy_textbox.Text) * 0.0005485799 * 1000
    Else
        'find target parameters
        With Data
            .RecordSource = "SELECT Material.Element, Material.AWR_C12, Material.LISO From Material
Where (((Material.Element) = " & Chr(34) & cp_element.Text & Chr(34) & ") And ((Material.A) = " &
Val(cp_mass.Text) & ") And ((Material.LISO) = 0))"
            .Refresh
        End With
        p_uma = Data.Recordset.Fields.Item(1)
        Etemp = Val(Energy_textbox.Text) * p_uma * 1000
    End If
Case 2 'm/s
    With Data
        .RecordSource = "SELECT Material.Element, Material.AWR_C12, Material.LISO From Material
Where (((Material.Element) = " & Chr(34) & cp_element.Text & Chr(34) & ") And ((Material.A) = " &
Val(cp_mass.Text) & ") And ((Material.LISO) = 0))"
        .Refresh
    End With
    p_uma = Data.Recordset.Fields.Item(1)
    mass = p_uma
    Etemp = velocity_to_energy(Val(Energy_textbox.Text), mass) * 1000
Case 3 'v/c
    With Data
        .RecordSource = "SELECT Material.Element, Material.AWR_C12, Material.LISO From Material
Where (((Material.Element) = " & Chr(34) & cp_element.Text & Chr(34) & ") And ((Material.A) = " &
Val(cp_mass.Text) & ") And ((Material.LISO) = 0))"
        .Refresh
    End With
    p_uma = Data.Recordset.Fields.Item(1)
    mass = p_uma
    Etemp = velocity_to_energy(Val(Energy_textbox.Text) * c, mass) * 1000
End Select
```

and in the details program section, please check if the following code is already implemented in the end of the subroutine Sub_unit_click, if not do so:

```
If Main.pred_proj.Text = "muon" Then
Se_m = CDBl(Se_lb.Caption) * c
St_m = CDBl(St_lb.Caption) * c
Se_lb.Caption = Format(Se_m, "###E+##")
St_lb.Caption = Format(St_m, "###E+##")
    If Main.pred_proj.Text = "positron" Then
        Se_p = CDBl(Se_lb.Caption) * c
        St_p = CDBl(St_lb.Caption) * c
        Se_lb.Caption = Format(Se_p, "###E+##")
        St_lb.Caption = Format(St_p, "###E+##")
    End If
Else
Se = CDBl(Se_lb.Caption) * c
Sn = CDBl(Sn_lb.Caption) * c
St = CDBl(St_lb.Caption) * c

Se_lb.Caption = Format(Se, "###E+##")
Sn_lb.Caption = Format(Sn, "###E+##")
St_lb.Caption = Format(St, "###E+##")

End If

END
```